DELTA LEVEE EMERGENCY MANAGEMENT AND RESPONSE PLAN

INTRODUCTION

Important local, statewide and national resources depend upon maintenance of an effective levee system in the Sacramento-San Joaquin Delta (Delta). A strong, on-going preventive levee repair, reconstruction, and maintenance program will reduce levee vulnerability, reduce (or in some cases, prevent) future emergencies and ensure the availability of the heavy marine construction equipment needed for effective emergency response. Notwithstanding increased efforts to upgrade and maintain Delta levees, the threats to levee system integrity cannot be totally eliminated. Thus an emergency management and response plan is required to protect Delta resources.

SCOPE

This report is intended to provide supplemental information for the CALFED Levee Program's Long-Term Levee Protection Plan and be consistent with other state and federal emergency response plans. There are types of emergency conditions, such as hazardous material spills, which could occur in Delta waterways and which, while not threatening levee integrity, could endanger water quality to the detriment of public water supplies and biological programs in which CALFED will have made substantial public investments. While such potential emergencies are recognized, they are presently excluded from the scope of this document.

BACKGROUND:

The Delta is an area of farmland, waterways and communities. It includes approximately 740,000 acres and is roughly located between the cities of Sacramento, Stockton, Tracy and Antioch. There are about 700 miles of interlaced channels, rivers and sloughs that convey flood waters from the entire Central Valley to the ocean. Over 60 islands and tracts are protected by a network of approximately 1,100 miles of Local Flood Control Non-project Levees and Federal Flood Control Project Levees as shown in the California Department of Water Resources (DWR) Delta Atlas on pages 38 and 40. The Delta provides habitat for fish and wildlife, accommodates shipping, protects population centers and infrastructure including railroads, highways, and pipelines, provides for agriculture and a vast array of recreational activities, and conveys water to over 20 million Californians.

Most of the land in the central and western Delta is below sea level and rapid response to levee threats is unusually important. Prompt emergency response is critical. A levee failure can endanger public safety, inundate thousands of acres of farmland and habitat, degrade in-Delta and export water quality, and disrupt the operations of the major State and Federal water delivery systems. Of course, multiple levee failures would substantially increase the scale of the emergency and the challenge of prompt response.

Delta levee integrity can be threatened several ways. Levee failure can occur from instability, overtopping and seepage. High water stages in the Delta can occur due to floods, unusually high tides, and atmospheric conditions involving high wind and low pressure. Levee performance during a seismic event is also a concern. Since original reclamation, each of the Delta islands or tracts has flooded at least once. With improved funding for preventive actions since 1986, disaster assistance spending has been reduced substantially.

FUTURE CONDITIONS

Implementation of CALFED's Levee System Integrity Program will not eliminate all threats to the levee system. Threatening circumstances, emergencies, and flooding should be anticipated. Typically, new embankments are most vulnerable to failure during, or immediately after, construction. Thus, levee upgrades involving major earthwork may temporarily reduce levee stability. Commonly, combinations of high tributary flows, strong winds, high tides and low barometric pressure generate flood stage conditions in the Delta. Continued development and construction of upstream flood control features may increase flood water stages in the Delta. Rise in sea level, channel dredging, and subsidence near the levees may increase seepage through levees and their foundations and reduce levee integrity. Conversion of land near levees to habitat may increase problems related to burrowing animals, may reduce the probability that levee inspection will detect levee defects before the problem becomes a threat, and may hinder emergency flood fight efforts. Lastly, the seismic threat to Delta levees is not well defined and remains a major concern.

GOALS

The goal of the Delta Levee Emergency Management and Response Plan is to enhance existing emergency response programs and capabilities in order to protect or restore critical Delta resources in the event of an emergency. An emergency is a condition of extreme peril to the safety of persons or property as a result of a threat of levee failure and island inundation. There are three critical components to emergency response.

1. Preparation. The ability to respond effectively to a threat, emergency or actual levee failure depends heavily on advanced preparation. All agencies and people involved need to understand their respective roles and responsibilities. There must be emergency planning at all levels of responsibility, clear understanding, scripted procedures for the recognition and declaration of emergency conditions, and established and rehearsed command and control systems. Local, county, State, and federal responses must be better coordinated to enhance existing decision-making, communication and action protocols. Regulatory and environmental compliance must be incorporated in all response planning. Critical response resources must be immediately available at all levels. Resources include funding, equipment, materiel stock piles, and appropriately trained personnel.

2. Quick and Effective Emergency Response. Time is of the essence in response to any incident or threatening circumstance. An imminent threat of levee failure or a failure requires immediate action that can only be the result of a thoroughly prepared and rehearsed emergency response plan. If failure can be prevented or addressed quickly, total losses and expenditures can be dramatically reduced.

3. Completion of Post-Emergency Repairs. In the event of an emergency, including breach closures, a smooth and quick transition to post emergency recovery work is needed to complete repairs and prepare for continued or new threats. Oftentimes one incident quickly follows another. It is important to facilitate resumption of normal economic activities and restore environmental resources damaged by the incident, subsequent emergency response, and post-emergency repair efforts.

ANALYSIS OF THE CURRENT EMERGENCY RESPONSE PROGRAM:

Significant improvements have been made to the existing emergency response system over the past several years. However, continuous improvements in the system must be made to reduce the risk to resources protected by Delta levees. Improving our emergency response capability is a very cost effective method of reducing risk.

The fluctuations in funding and environmental regulation applicable to ongoing levee reconstruction, maintenance and repair work has impacted the capability of local, state and federal agencies to respond to imminent threats of levee failure in several ways.

The "work windows" established under biological opinions on endangered species (Chinook Salmon, Delta Smelt, and Swainsons Hawk) are especially important. These windows, combined with other environmental permitting practices, have severely constrained

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opportunities to perform the work in the Delta waterways which is essential to proper levee reconstruction, repair and maintenance.

Without sufficient work opportunities, the specialized levee building equipment (especially side draft dredges, barge cranes and rock barges) and personnel experienced in operating conditions in the Delta have almost disappeared. These types of equipment and experienced operators are necessary during levee emergencies in those locations and under conditions where work often cannot be performed from the land.

Levee funding resources have been severely impacted by inconsistent and inadequate program funding. Local financial resources have been impacted by bank audit procedures which have reduced the availability of credit to local reclamation districts and by lengthy delays in reimbursement from state and federal disaster assistance programs because of often-unclear inspection, documentation, and audit procedures.

Some of the levee maintaining agencies don't generate the revenues needed to provide adequate maintenance and emergency response.

In some instances, State and federal emergency assistance has been delayed by the required showing that local resources have been exhausted.

Although historically there has been confusion over the procedures for declaration of a state of emergency and the respective roles of the various local, State and federal interests, these areas have shown considerable improvement as a result of experience gained in the 1997 and 1998 flood emergencies. Three documents were completed in compliance with the Flood Emergency Action Team (FEAT) recommendations and have enhanced emergency operations: 1)Guidelines for Coordinating Flood Emergency Operations, 2) Flood Preparedness Guide for Levee Maintaining Agencies, and 3) Protocol for Closure of Delta Waterways. These guidelines have clarified the responsibilities of local agencies that maintain levees and flood control structures.

By law, State agencies must use the Standardized Emergency Management System (SEMS) when responding to emergencies involving multiple jurisdictions or multiple agencies. The basic framework of SEMS and the Incident Command System (ICS) incorporates multi-agency or inter-agency coordination, the State's master mutual aid agreement and mutual aid program, the operational area concept, and the Operational Area Satellite Information System (OASIS). SEMS has also enhanced the emergency response capability of local and State agencies.

The California Department of Water Resources approved Water Resources Engineering Memorandum No. 63 on January 29, 1999, which establishes the Department's policy and procedures for responding to emergency levee-endangering incidents in the Sacramento-San Joaquin Delta. Similar advance work is necessary relative to potential earthquake emergencies and in the regulatory arena to pre-define environmental regulations applicable to levee emergencies and recovery activities.

Although California Water Code Section 128 gives authority to the Department of Water Resources to flood fight during emergencies, it does not provide funds to support flood fighting. Consequently, the DWR response has generally been limited to technical assistance and coordination of work with the California Conservation Corps, and California Department of Forestry and Fire Protection for crews for placement of sandbags, plastic and other hand-labor-related work.

PROPOSED PROGRAM

CALFED's contribution to an effective Delta levee emergency response program should be concentrated in seven areas:

1. Funding. The vulnerability of the levee system can be reduced by implementing an integrated and comprehensive reconstruction, repair and maintenance program for Delta levees and channels, as described and recommended under the Levee System Integrity Program. This can only be accomplished by supplementing local funding capability through State and federal cost-sharing at adequate and consistent levels, and by opening up existing "work windows" and environmental permitting so that a viable Delta levee building industry can be reestablished.. The significant incidental benefit of a well-funded Delta levee program is to establish a continuous local presence of specialized equipment. Marine-based equipment required to perform levee rehabilitation on some central and western Delta islands will likely be more accessible during emergencies if there is sufficient ongoing work to maintain local operations.

2. Response by State and Federal Agencies.

a. In accordance with the "Guidelines for Coordinating Flood Emergency Operations," the local levee-maintaining agency requests PL 84-99 flood fight assistance through the local government or operational area's Emergency Operations Center established

under the SEMS. For flood control projects sponsored by the Reclamation Board, DWR technical assistance may be requested directly. Local requests to the U. S. Army Corps of Engineers for PL 84-99 assistance are referred through the operational area or DWR. After evaluation, the Department forwards the request to the Corps of Engineers for further review and action. The response is in some cases delayed and hindered by a need that local and State resources "have been exhausted." When the Corps does respond, its flood-fight efforts are 100% funded.

The DWR capability to respond to flood emergencies in the Delta should be expanded to include all aspects of a flood fight where levees or other flood control structures are in danger of failure regardless of whether or not the danger is due to storms, floods, earthquakes, rodents, vessel impacts or any other cause. The funding for support of DWR's efforts, either through expansion of existing programs or through creation of a new program should be ample and clearly committed for comprehensive emergency response[1].

Bond authorization might be particularly helpful to ensure the availability of funds when needed. For example, authorization of $60 million in bonds to create and replenish a $10 million revolving fund specifically for DWR emergency flood fighting assistance would provide the assurance that DWR timely response would be funded, and should help demonstrate that the local share of disaster assistance provided under federal programs will be available.

The role of the Corps should also be clarified and confirmed so as to eliminate delay in response and avoid any dispute as to whether or not the local and State response is sufficient.

b. Under PL 84-99, the Corps of Engineers repairs the flood-related damage to "project levees" and eligible non-project levees. The only non-federal costs are for lands, easements and rights-of-way, and local obligations to hold the government harmless and to operate and maintain the project, and to provide borrow material for repairs.

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[1] The $200,000 currently provided to DWR under the Delta Levee Subventions Program (Water Code § 12994) is not only inadequate, but will expire under the terms of its authorizing legislation.

3. Ensuring Availability of Flood Fight Resources.

a. Specialized equipment and operators: A revitalized levee rehabilitation industry under the Levee System Integrity Program will establish a fleet of specialized equipment essential to a rapid emergency response,[2] but will not ensure its availability during emergencies which often extend to other areas. LMA's and/or Operational Areas should establish pre-emergency contracting for specialized equipment to secure the availability of the equipment and experienced operators, and establish pricing for emergency services.

b. Materiel stockpiles: The State Department of Water Resources has established stockpiles for flood fight materiel (sandbags, plastic, stakes, light equipment, pumps, etc.) at locations in the northern, southern, and western Delta. This program needs to be expanded to include rock and sand stockpiles, and to key locations in the central and south Delta regions. Additionally, assurance of supply and/or stockpiling of drain rock and riprap should be included. Coordination between the stockpiling activities of other agencies would be desirable. Transportation of the materials to where they are most needed also needs to be addressed.

c. Labor: Operational Areas and/or LMAs should consider formal arrangements with the California Department of Forestry and Fire Protection as well as with the California Conservation Corps and with the State prison system for emergency assistance.

4. Integrated Response. A detailed response plan should be developed for the Delta that would allow an immediate, simultaneous response to a serious incident (such as a major flood or an earthquake) by all levels of government within a single integrated organizational structure. The plan would identify common needs and functions of all agencies, e.g., housing, feeding, transportation, supplies (including rock and sand), equipment and

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[2] Ideally, the resident population of specialized equipment needs to be sufficient to operate in several locations at once, whether because of high flood stages threatening many sites, or because of a strong earthquake damaging several sites. A Delta-based dredging company estimates that it takes at least a $5 million annual levee program expenditure level to generate enough dredger work to justify operating one dredge, with a work window of 3 to 4 months. One barge crane/rock barge unit would be justified in a program of that size with a ten-month work window. By extrapolation, we might expect a $30 million annual program to support approximately 5 dredgers and 5 barge crane/rock barge units in the Delta given appropriate work windows.

contracted services and assign the most capable agency/jurisdiction to perform each on behalf of all agencies. The detailed floodfight/earthquake response plans for specific LMAs or areas of the Delta would provide the basis for pre-identifying and assigning specific responsibilities for each agency as well as the level of resources which the individual LMA would be expected to provide in response to the emergency. With detailed assignment of responsibilities, an organizational structure for the "area command" could be delineated so as to assure coordination with the "incident commands." The detailed response plan would serve as the basis for requesting modification to disaster assistance programs, including any needed legislation. The FEAT-produced documents, discussed earlier, may serve this purpose.

5. Clarifying Regulatory Procedures: Although both State and federal laws suspend environmental regulation during emergencies, some clarifications are desirable.

a. The definitions of emergency for response and regulatory activities need to be consistent. It is especially important that the defined duration of the emergency be consistent for both purposes.

b. Mitigation measures which will be expected during post-emergency recovery work should be defined by a series of examples in order that emergency work will not unnecessarily exacerbate mitigation responsibilities, so that post-emergency recovery work will not be unnecessarily delayed, and so appropriate mitigation can be rapidly defined and implemented.

6. Clarifying Program Eligibility, Inspection, Documentation, Auditing, and Reimbursement Procedures. In virtually all of the declared emergencies in the last twenty-five years there has been confusion as to how the State and/or federal emergency assistance programs are to be administered. This confusion has contributed to lengthy reimbursement delays, or outright denials which has adversely affected the financial condition and trade-credit and bank-credit opportunities of the local flood control agencies. The requirements of these programs need to be standardized to be consistent with one another, be well and timely communicated to the local agencies, and not be changed or re-interpreted during the completion of the reimbursement process. In addition, legal jurisdiction as a criteria for cost reimbursement needs to be clarified to eliminate obstacles to integrated, multi-jurisdictional emergency response.

7. Dispute Resolution. Because events move swiftly during emergency response, there should be a timely dispute resolution process. Currently, the "exhaustion of administrative remedies" followed by court system recourse is truly exhausting both in terms of energy and money. Reimbursement disputes have consumed more than fifteen years in many cases, with local resources being used which should be going into levee work. A binding arbitration procedure conducted by knowledgeable but impartial arbiters should be established encompassing both the State and federal programs.